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VOL'F KOVICH, S. I.

CP

Isolation of rare earths from apatite in the course of its acid treatment. S. I. Vol'kovich and A. I. Logunova. *Compt. rend. acad. sci. USSR*, 25, (1969) in English. In the manu. of H_3PO_4 from apatite, 20-30% of the rare earths pass into soln.; the rest remain in the ppt. of $CaSO_4$. Rare earth contents of H_3PO_4 were found to be 0.03-0.14%. On the basis of the lab. tests the following simple plan is suggested for producing rare earth concentrates. After isolation of F as SbF_5 , neutralize H_3PO_4 by $Ca(OH)_2$ up to 80-90% or by $CaCO_3$ up to 70-80% of the first H atom of H_3PO_4 ; sep. by decantation or filtration the rare earth phosphates pptd. at the same time. A. H. Krapp

No. 2

ASM-AIA METALLURGICAL LITERATURE CLASSIFICATION

VOL'FKOVICH, S. I.

"The Physical, Chemical, and Technical Analysis of Processes of Decomposition of Phosphates by Saltpeter Acid with Utilization of Waste," Iz. Ak. Nauk USSR, Ot. Khim. Nauk, No. 5, 1940. Scientific Inst. for Fertilization and Insecticides im. Ya. V. Samoylova, -1940-

Production of phosphoric acid by the sulfuric acid method. S. I. Volkovich, S. K. Voskresenskii, A. A. Sokolovskii, R. B. Remen and M. M. Kolvin. *Trans. Sci. Inst. Fertilizers Insectofungicides* (U. S. S. R.) No. 133, 12-42(1940).—Expts. were conducted with Khibin flotation apatite and various phosphorite concentrates. Apatite decompd. much slower than phosphorites. Effect of temp. was greater on apatite than on phosphorites. The action of acid (20% P_2O_5) for 3-5 hrs. decompd. 90-5% of the apatite only at about 80° while at lower temps. the decompn. was slower. Phosphorites were practically completely decompd. at 20-30°. With less-concd. acid (10-12% P_2O_5) decompn. was 0.4-0.5 times that with 20% acid. Decompn. of phosphorites reached 75-85% in the first 10 min. and then increased gradually. The nature of the phosphorite had no effect on the kinetics of the reaction. The decompn. curve of apatite was not as steep as for phosphorites. Consumption of H_2SO_4 per ton of P_2O_5 in the H_3PO_4 was 2.41 tons for apatite and 2.95-4.12 tons for the phosphorites. Losses of P_2O_5 in the extn. were 4% for the apatite and 7-25% for the phosphorites. With phosphate in which $Fe_2O_3 \times 100/P_2O_5$ was less than 12 the losses of P_2O_5 were negligible, for $Fe_2O_3 \times 100/P_2O_5 = 12-16$ the losses were small and for $Fe_2O_3 \times 100/P_2O_5$ much larger than 12 the losses were great. In order to obtain a uniform and large-crystal ppt. of gypsum the SO_3 and CaO in the liquid phase of the first agitator should be const. with SO_3 not over 1-2.5% and CaO 0.75-0.85%. Two methods were compared, with and without pulp circulation. With circulation SO_3/CaO was 2.5-3.0 and without circulation SO_3/CaO in H_2SO_4 soln. from the first agitator was much higher. In the latter case the crystal of gypsum was more rapid and the ppt. was not of uniform size. At 70-80° the gypsum had the greatest soly. in acid

B. Z. Kamich

18

VOLFKOVICH, S.-I.
C.A.

Production of phosphoric acid and ammonium phosphates. S. I. Volkovich, S. K. Voskresenski, N. I. Kryuchkov, R. E. Kemén, B. I. Sviderskii and O. M. Strongin. *Trans. Sci. Inst. Fertilizers Insectofungicides* (U. S. S. R.) No. 153, 143-62(1940).—Results of semi-plant scale expts. for the production of H_3PO_4 and NH_4 phosphates are described. Optimum concn. of H_3PO_4 (fromotation apatite) for satn. with NH_3 was 38% P_2O_5 . Satn. is carried on continuously in a medium having a pH of 4.5-5.5. Temp. of the pulp reaches 110° , sp. gr. 1.5 and η 1.19 (to water at 80°). The satn. is controlled with methyl orange and methyl red indicators. The product contained 47.5-9.0% water-sol. P_2O_5 , 2.5-3.0% citrate-sol. P_2O_5 , and total NH_3 15.0%, moisture 1.5%.
B. Z. Kamich

ASA-SLA METALLURGICAL LITERATURE CLASSIFICATION

VOL'FKOVICH, S. I.

"Hydrochloric Acid Conversion of Apatites to Fertilizers, Rare Earths and Fluoride Salts," Dok. AN, 44, No. 4, 1944 (Samoylov Inst. Fertilizers and Insectofungicides, c. 1944)

VOL'FKOVICH, S.I.

CA

18

Investigation of equilibrium systems in the production of ammonium phosphates. S. I. Vol'kovich, L. K. Berlin and B. M. Mantsev. *Trans. Sci. Inst. Fertilizers Insectofungicides* (U. S. S. R.) No. 133, 228-41 (1940).—An investigation was made of soly. in the system $H_2O-NH_4H_2PO_4-SO_4$ at 25° in acid and alk. media. Soly. of $NH_4H_2PO_4$ increases greatly upon addn. of $(NH_4)_3HPO_4$, but soly. of the latter increases insignificantly upon addn. of the former. Soly. of $(NH_4)_3HPO_4$ decreases approx. half upon addn. of $(NH_4)_3PO_4 \cdot 3H_2O$ but the soly. of the latter upon the addn. of $(NH_4)_3HPO_4$ at first drops to about 0.25 its former value and upon further addn. remains const. Soly. of ammonium phosphates decreases to nearly one-half upon the addn. of $(NH_4)_2SO_4$, while soly. of the latter with the addn. of $NH_4H_2PO_4$ increases at first to a small extent and then drops and with the addn. of $(NH_4)_3HPO_4$ and $(NH_4)_3PO_4 \cdot 3H_2O$ it drops to a small extent. Addn. of NH_3 to a soln. satd. with $NH_4H_2PO_4$ at first greatly increases the content of P_2O_5 up to the double point of $NH_4H_2PO_4-(NH_4)_3HPO_4$, and then there is a rapid decrease in the P_2O_5 content which drops nearly to zero in a strongly ammoniacal soln. Similar observations were made upon the addn. of NH_3 to a soln. satd. with $NH_4H_2PO_4$ and $(NH_4)_2SO_4$. B. Z. Kamich

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

PROCESS AND PROPERTIES INDEX																									
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<p>Photo-chemical and technological analysis of the process of decomposition of phosphates by nitric acid. N. I. Volynskiy, A. P. Baklanov, and A. I. Logunov (Bull. Acad. Sci. U.S.S.R., Geol. Sci. Chem., 1960, 706-728). Phosphorite is treated with 80% HNO₃ to effect the reaction $\text{Ca}_3(\text{PO}_4)_2 + 10\text{HNO}_3 \rightarrow 2\text{Ca}(\text{NO}_3)_2 + \text{H}_2\text{PO}_4 + \text{HF}$. NaNO₃ is then added to the filtrate, to ppt. Na₂SiF₆ and Ca(OH)₂, to the filtered solution at 80°, in amount necessary for formation of Ca(H₂PO₄)₂, which is pptd. together with rare-earth phosphates at 10-20°. The filtrate is then made neutral with Ca(OH)₂, the ppt. collected and dried, and the distillate evaporated to crystalline Ca(NO₃)₂. M. T.</p>																									
<p>ASB-55A METALLURGICAL LITERATURE CLASSIFICATION</p>																									

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS										5TH AND 6TH ORDERS									
PROCESSES AND PROPERTIES INDEX																													
<p><i>Vol'fkevich, S.I.</i></p> <p><i>CA</i></p> <p><i>H₂BO₃. Nauchnyi Inst. po Udobreniyam i Insektosungizidam (inventors, S.I. Vol'fkovich and L. E. Berlin). Russ. 50,811, Apr. 30, 1941. Materials B and Mg are decompd. with H₂PO₄, and from the soln. obtained H₂BO₃ is crystd. out. The mother liquor is evapd. to form a fertiliser contg. P, B and Mg.</i></p>																													
<p>ASA-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																													
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<p>EXPERIMENTAL DATA</p>																													

1ST AND 2ND SERIES		PROCESSING AND PROPERTY INDEX	
CA		2	
VOL'FKOVICH, S. I.		Nikolai Semenovitch KURCHENOV, 1860-1941. In me- moriam. S. I. Vol'kovich. <i>Uspekhi Khim.</i> 10, 787-83 (1941).—Biography with portrait. P. H. R.	
Inst. Insect. Fung. im. Samoylov-		U-237/49, 8 Apr 49	
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z		A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	
METALLURGICAL LITERATURE CLASSIFICATION		EIGHTH EDITION	
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RESEARCH DIVISION		RESEARCH DIVISION	

COMMON ELEMENTS																										COMMON VARIABLE MOIETIES																									
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VOL'KOVICH, S. I.																										18																									
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<p>Catalytic acceleration of the Hargreaves-Robinson process. S. I. Vol'kovich and F. Margolis. <i>Bull. Acad. Sci. U.R.S.S., Class. sci. chim.</i> 1942, 322-4. -In the Hargreaves-Robinson process for Na_2SO_4 from NaCl, SO_2, H_2O and O, pyrites slag is the most effective catalyst. The yield of sulfate is 95-98% with the time requirement not longer than 1.5 hrs. The utilization of SO_2 reached 10% per single pass. Seven references. G. M. Kosolapoff</p>																																																			
<p>ASB-31A METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			
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VOL'FKOVICH, S.I.

"G. N. Pryanishnikov and the Development of the Fertilizer Industry in USSR," S. I. Vol'fkovich, J. Applied Chem (USSR) XIX, pp 333-42 (1942)
(SEE: Inst. Insect/Fungi. in Ya. V. Samoylov)

SO: U-237/49, 8 April 1949

BC A-1

Microkinematographic investigation of crystallization of nitrates.
 N. I. Vukobratovich (Compt. rend. Acad. Sci. U.R.S.S., 1943, 41, 332-333).---A new transition of NH_4NO_3 in the range 44-57° is recorded. The transition from the regular to the rhombohedral system on cooling to 123° takes place with decrease of vol. Transition to the α -form... neutral form at 84.5° takes place with increase of vol. NH_4NO_3 cryst. at 0-20° is more vitreous and compact and less hygroscopic than that cryst. at 70°. $\text{Ca}(\text{NO}_3)_2$, KNO_3 , and NaNO_3 crystals coalesce the less, the lower is the temp. of crystallization. KNO_3 crystallizes from saturated solutions in rhombohedral crystals, rapidly changing to rhombohedral. L. J. J.

ASAC-51A METALLURGICAL LITERATURE CLASSIFICATION

314-516; 346-7; 332-3

VOL'FKOVICH, S. I.

"Chemistry in war," S. I. Vol'fkovich, Vestnik Akad Nauk SSSR,
113, No 1/2, p 93-108 (1943), a review (SEE: Inst. Insect/
Fungi. in Ya. V. Samoylov)

SO: U-237/49, 8 April 1949

Catalysis in producing potassium and sodium sulphates from chlorides decomposed with sulphur dioxide in the presence of oxygen. S. I. Volkovitch (*Compt. rend. Acad. Sci. U.R.S.S.*, 1943, 41(21--23). --The oxidation of SO_2 to SO_3 in the vapour phase in presence of H_2O (for conversion of KCl into K_2SO_4 with SO_2 in presence of O_2 at 500--550°) can be accelerated several hundred times by means of catalysts containing Fe_2O_3 . Hurnt pyrites refuse from H_2SO_4 manufacture is best used as a 1% admixture by wt. with the KCl . 90--95% recovery of K_2SO_4 is obtained with a reaction time of >1.5 hr. and 40% utilisation of the SO_2 per passage. L. J. J. No. 1

1ST AND 2ND PERIODS		3RD AND 4TH PERIODS	
VOLUME F. KAVICH, S. I.		2	
<p><i>ca</i></p> <p>Catalysts for the production of K_2SO_4 or Na_2SO_4 from KCl or $NaCl$ by reaction with SO_3. B. I. Vol'kovich and P. G. Margolin. <i>Doklady Akad. Nauk S. S. R.</i> 41, 22-3(1948); cf. C. A. 27, 367; 28, 875. Catalysts tested for the reaction $4KCl + 2SO_3 + 2H_2O + O_2 \rightarrow 2K_2SO_4 + 4HCl$ included Al_2O_3, CuO, $Co(NO_3)_2$, $CaSO_4$, Fe_2O_3 and various Fe-contg. metalorganic products. The most effective catalysts were those contg. Fe, especially roasted pyrite ash (I), titanomagnetite slag and products obtained from the latter by acid or alkali treatment. At the optimum temp., 500-550°, use of 1% of I decreased the time required for 94-95% conversion of KCl to K_2SO_4 from 16-20 days to a matter of hrs. Other factors hastening the conversion are fine grinding of the KCl, preliminary moistening of the KCl and proper design of the app. to ensure intimate contact between the SO_3 and the KCl. The duration of the reaction may be made as short as 1.5 hrs. for 95-96% conversion when using gas contg. 8.5-10.5% SO_3 of which 40% reacted to form K_2SO_4. Improved utilization of the SO_3 and development of better app. require further study. Catalysts contg. Fe are effective also in accelerating the reaction, $2NaCl + SO_3 + O_2 \rightarrow Na_2SO_4 + Cl_2$. J. W. Perry</p>			
ASB-51A METALLURGICAL LITERATURE CLASSIFICATION			
FROM SYNDICATE		FROM BOWERY	
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1000000 0 1		001101 000 000 101	

BC

A-1

Investigation of physico-chemical properties and structure of nitrates by means of cinephotomicrography. S. Volkovitch and T. Glazova (*Bull. Acad. Sci. U.R.S.S., El. Sci. Chim.* 1943, 314-316).—Crystallization and transformation of NH_4NO_3 , NaNO_3 , KNO_3 , and $\text{Ca}(\text{NO}_3)_2$ have been photographed 64 times per sec. A new transformation of NH_4NO_3 has been observed at 44–57°. Crystals obtained by cooling the melt to lower temp. (0–20°) are larger and less hygroscopic than those obtained at higher temp. I I H.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1.5

VOLFKOVICH, S.I.

24

Complex process of decomposition of natural borates by H_2O_2 with the formation of H_2BO_3 and fertilizers. L. E. Berlin and S. I. Volkovich. Bull. acad. sci. U.R.S.S., Classe sci. chim. 1944, 172-7 (English summary).—It is possible to treat natural borates (ascharites and hydrates) with H_2O_2 or $H_2PO_4 \cdot H_2SO_4$ to yield H_2BO_3 and phosphorite. In the case of ascharites the latter contains P_2O_5 82.7, B_2O_3 4.7 and NH_4 10.0% (introduced for neutralization of the mother liquor after sepn. of H_2BO_3); use of lime for neutralization gave fertilizers contg. 80.3% P_2O_5 and 3.1% B_2O_3 . In the case of low-grade hydrateborates the fertilizers contain P_2O_5 21.9-27.8, B_2O_3 2.7-3.3, MgO 3.6-4.4, CaO 23.6-26.3 and SO_3 30.3-26.3%. Sol. data were collected for the system B_2O_3 - P_2O_5 - CaO - MgO in the temp. interval 0-80°. It is recommended that semiplant operations be used to verify the lab.-scale work reported here. G. M. Koshlapoff

Cl. preceding abstr.

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCESSING AND PROPERTIES INDEX																			
<p>VOL'KOVICH, S.I.</p> <p>CA</p> <p>18</p> <p>Complex processing of apatite with hydrochloric acid. S. I. Vol'kovich and A. Loginova. <i>J. Applied Chem. U.S.S.R.</i> 17, 381-83(1944).—A previously summarized method (cf. C.A. 39, 12609) for working up apatite, with recovery of F as Na_2SiF_6 and rare earths as phosphates, is described in detail. A rather thorough study was made of the variables controlling the yield of products and the various steps in the process. J. W. Perry</p>																			
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> <p>1ST GROUP 2ND GROUP 3RD GROUP 4TH GROUP 5TH GROUP 6TH GROUP 7TH GROUP 8TH GROUP 9TH GROUP 10TH GROUP</p>																			

A-Z																										0-9																										A-Z																										0-9																									
<p>15</p> <p>Vol'kovich, S. I.</p> <p>EA</p> <p>Conversion of natural borates into boric acid and fertilizers by the process of phosphate treatment. S. I. Vol'kovich and L. R. Berila. <i>Doklady Akad. Nauk S.S.S.R.</i> 43, 264-6; <i>Compt. rend. acad. sci. U.R.S.S.</i> 43, 249-51 (1941) (in English).--Reaction of H_3PO_4 in proper amts. (10%, and 100% of the stoichiometric amts. for 70% and 38% H_3PO_4, resp.) with naturally occurring borates of Mg and Ca (e.g., the ascharite rocks of Indar) produced a soln. contg. H_3BO_3, $Ca(H_2PO_4)_2$ and $Mg(H_2PO_4)_2$. After cooling to 15°, the H_3BO_3 (88-100% pure) was filtered off. Neutralisation of the mother liquor with light pptd. citrate-sol. $CaHPO_4$ and $MgHPO_4$. Neutralization with NH_3 resulted in conversion of the phosphate partly into citrate-sol. and partly into water-sol. form. The whole process can be managed so as to produce phosphate fertilizers contg. 0.11-0.22% B. Mists. of H_2SO_4 and H_3PO_4 can be used without affecting the degree of borate decompn. Cf. <i>C.A.</i> 39, 1026¹ and following abstr. J. W. Perry</p>																																																																																																							
<p>ASB-51-A DETAILURGICAL LITERATURE CLASSIFICATION</p>																																																																																																							

1ST AND 2ND ORDERS		PROCESSES AND PROPERTIES INDEX	
VOL. FROVICH, S. I.		18	
C 4			
<p>No. 4</p> <p>Process of working up apatite with HCl to produce (phosphate) fertilizer, rare earths and F salts. S. I. Vol. Frovich and A. A. Luginova. <i>Nekhodny Akad. Nauk S. S. S. R.</i> 44:568-71 (1911). Apatite concentrates (from the Khibin region of the U. S. S. R.) contain more than 1% of rare earths of the Ce group and about 3.2% P. The apatite was first made to react with 15% aq. HCl at 30° for 3-3 hrs. The resulting soln. was treated with NaCl to ppt. Na_2SiF_6. Next the rare earths were pptd. as their phosphates by adding CaO (or finely ground limestone) until 65-70% of the first H of H_3PO_4 was neutralized. To prevent coptn. of $\text{Ca}(\text{H}_2\text{PO}_4)_2$ was pptd. by adding lime in above 25°. Finally CaH_2PO_4 was pptd. Working up 1 metric ton of apatite required 4320 kg. of 15% HCl, 223 kg. of NaCl and 607.8 kg. of limestone. Yields of 42.7 kg. of 5% Na_2SiF_6, 19 kg. of ppt. contg. 10% rare earth oxides and 843 kg. of Ca acid phosphate ppt. contg. 45% P_2O_5 were obtained. J. W. Perry</p>			
<p>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> <p>FROM SYMBOLOGY</p> <p>SYMBOLS MAY ONLY GO TO</p> <p>RELATIONS</p> <p>FROM SYMBOLS</p>			

VOLPKOVICH, S.I.

[Chemical sciences] Khimicheskie nauki. Moskva, Akademiia nauk
SSSR, 1945. 116 p. (MLRA 7:6)
(Chemistry)

1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
COMMON ELEMENTS																										COMMON ELEMENTS																									
<p>VOLOKOVICH, S.I.</p> <p>Outline of the History of the Academy of Sciences of U.S.S.R. Section of Chemical Sciences. S. I. Volkovich, editor. 117 pages. 1946. Academy of Sciences of U.S.S.R., Moscow. (In Russian.)</p> <p>Short review of the activity of the chemical section of the Academy of Sciences of U.S.S.R. from the time of its foundation up to the present. Covers inorganic, organic and physical chemistries, listing the most prominent scientists of the former Russian and of the contemporary Soviet regimes, with short biographies, giving their scientific accomplishments.</p>																																																			
ASB-55A METALLURGICAL LITERATURE CLASSIFICATION																										COMMON ELEMENTS																									
1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									

1ST AND 2ND ORDERS		PROCESSES AND PROPERTIES INDEX		140 AND 4TH ORDERS	
<p>CA VOLKOVICH 3-1</p> <p>Production of dicalcium phosphate by hydrochloric acid decomposition of phosphates. B. I. Vol'kovich, A. Loginova, and A. A. Sokolovskii. <i>Khimicheskaya Prom.</i> 1945, No. 3, 1-7. — Direct decompn. of the phosphate with HCl is compared with a 2-stage process in which the phosphate is treated first with H_3PO_4 obtained in the 2nd stage, filtered, and the residue is treated with HCl. The 2-stage method requires more equipment and complicated handling, but it is preferable because it permits extg. 98-99% of the P_2O_5, and reduces the consumption of HCl by approx. 20%. The H_3PO_4 soln. obtained in the 2nd stage</p> <p>is freed from 70-80% of its F content by addn. of NaCl soln. to ppt. Na_2SiF_6. Pptn. of CaH_2PO_4 by -200-mesh limestone is preferable to pptn. by lime water, because the ppt. is coarser, easier to filter, and can be dried more completely without decrease of soly. In citric acid; and limestone is cheaper. In the intermittent process, 105% of the theoretical quantity of CaO (as limestone) is required to ppt. 90-92% of the P_2O_5 in soln. in 4-5 hrs. The same degree of completeness in the continuous process requires 14 hrs.; the filtrate still contains 0.3% of P_2O_5 or approx. 10% of the P_2O_5 in the starting material. This can be pptd. with lime water. The pptn. is carried out in 2 stages; in the first, there is used approx. 85% of the CaO required, and this ppts. approx. 80% of P_2O_5 of fertilizer grade; the product of the second stage of pptn. contains approx. 38% of P_2O_5 and only traces of F. HCl decompn. of crude phosphate permits utilizing ore contg. more Fe than does H_2SO_4 soln., since it dissolves less Fe, the decompn. product is purer, and the undecompl. residue is smaller. If rare earths are present in the crude phosphate, 80% of them can be recovered in the HCl process; only 30-40% with H_2SO_4. With HCl, the raw material need not be so finely ground as with H_2SO_4. HCl is more corrosive to metal equipment than is H_2SO_4, and the vol. of the app. required is greater. The $CaCl_2$ obtained in the process in considerable quantities is less usable than the $Ca(NO_3)_2$ obtained when HNO_3 is used.</p> <p>M. Howh</p>					
<p>ASB-51A METALLURGICAL LITERATURE CLASSIFICATION</p> <p>FROM BOWLING</p>					

1ST AND 2ND COLUMNS										3RD AND 4TH COLUMNS									
VOL'EKOVICH, S. I.										PROCESSES AND PROPERTIES INDEX									
Ca										12									
<p>Melamine metaphosphate. S. I. Vol'tkovich, E. R. Zuser, and R. B. Remen. U.S.S.R. 36,130, Apr. 30, 1940. An aq. suspension of melamine is mixed with an aq. suspension of HPO_3. The mist. is allowed to stand for some time and the melamine metaphosphate which settles out is filtered off. M. Hovch</p>																			
A 30-31A METALLURGICAL LITERATURE CLASSIFICATION										6-17-40, 12-40									
1-10-40										1-10-40									

VOL'FROVICH, S. I.

"Problems of Agricultural Science in the Light of the Fourth Five-Year Plan for the Chemical Industry," a lecture given at the Conference on Problems of Agricultural Chemistry in the New Five-Year Plan held 17-20 May 1946.

Vestnik AS USSR 8/9, 1946

VOL'FKOVICH, S. I.

Melamine phosphates. S. I. Vol'fkovich, E. E. Zussner, and R. E. Remen. *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1946, 571-9. — The metaphosphate was prepd. by a new method, termed the "suspension method," in a reaction between solid melamine, $C_3H_6N_6$ (I), and solid HPO_3 in suspension in H_2O . This method permits considerable reduction of the vol. of the app. and economy of operations; also, hydration of solid HPO_3 is slow, hence there is a smaller amt. of other phosphates in the product. A mixt. of 10 parts by wt. of I with 18 parts " HPO_3 " (solid, contg. 67.6% P_2O_5 and about 40% salts, mainly $NaPO_3$) and 200 ml. H_2O , gave in 1 hr., at 30, 60, and 80°, a product with a soly. of 0.25, 0.23, and 0.36%, resp.; the yield of $I \cdot HPO_3$ was 1.5-1.8 wt. parts per 1 part I. The solid product obtained in suspension filtered readily and

could be washed about 10 times faster than that obtained in soln. with chemically pure HPO_3 , the product was difficult to filter and to wash. The optimum drying temp. is 45-50°; a higher drying temp. or prolonged drying impairs the quality of the product in the sense of lowering the P_2O_5 content and increasing the soly., owing to partial conversion to orthophosphate. On standing above H_2O at 20°, the increase of wt. was 14-15 and 60-70%, resp., in 7 and 20 days, and the soly. rose to 0.74%. Synthesis from I and $(NaPO_3)_2$ gave poorer yields and poorer quality (higher soly.). The pyrophosphate was synthesized by 2 methods, either by producing first the orthophosphate

from H_2PO_4 and I in suspension or in soln. and heating at 250-70°, or by direct reaction of I with $Na_2P_2O_7$ in soln. and pptn. with an acid. The $I \cdot H_2PO_4$ obtained in the 1st method was easily filtered and washed with cold water, dried at 100-120°, and converted to $2I \cdot H_2P_2O_7$ at 250-70°; the product contained 33% P_2O_5 and its soly. at 20° was not over 0.1%. By the 2nd method, using 9-18 g. $Na_2P_2O_7$ per 5 g. I, the best products (soly. 0.07-0.16%) were obtained by pptn. with HCl or HNO_3 ; pptn. with H_2PO_4 gives more highly sol. products, and requires greater expenditure of acid. The best filterability is obtained at about 0.049-0.046% HNO_3 in the pulp, and an optimum stirring rate of 60-80 r.p.m. The pyrophosphate is best dried at above 100°. Variations of the soly. of the different products are due to the presence of varying amts. of the other phosphates. The solubilities of the individual phosphates, at 20° and 100°, are: $I \cdot HPO_3$ 0.09 and 1.60%; $I \cdot H_2PO_4$ 0.35 and 2.91%; $2I \cdot H_2P_2O_7$ 0.09 and 0.54%. In the order of decreasing hygroscopicity, the gain of wt. after 17 days over H_2O at 17° was: $I \cdot HPO_3$ 31.0%, $I \cdot H_2PO_4$ 7.0%, $2I \cdot H_2P_2O_7$ 2.1%. $I \cdot HPO_3$ appears on microscopic examn. as a microcryst. aggregate, $n(av.) \sim 1.610$. $2I \cdot H_2P_2O_7$ forms fine orthorhombic plates or needles, the former with n_p 1.483, n_s 1.712, the latter 1.535, 1.723. $I \cdot H_2PO_4$ forms thin monoclinic plates, n_p 1.476, n_s 1.725. N. Thon

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VOLFKOVICH, S. I.

FA 21117

USSR/Chemistry
Fertilizers
Phosphates

Sep 1946

"A Method for Manufacturing NPK Fertilizers," S. I. Volkovich, Corresponding Member of the Academy of Sciences of the USSR, A. I. Loginova, Research Institute of Fertilizers and Insectofungicides, imeni J. V. Samoilov, 4 pp

"Comptes Rendus (Doklady)" Vol LIII, No 8

A discussion is made of a new efficient method of treating phosphates with nitric acid in the making of nitrogen-phosphate fertilizers from Khibiny apatites.

21117

C 4
VOL'FKOVICH, S. I.

Mineral fertilizer. S. I. Vol'kovich and A. I. Loginova. U.S.S.R. 69,610, Nov. 30, 1917. Natural phosphorites are treated with HNO_3 . The ext. is cooled to approx. 10° to ppt. 40-60% of the $\text{Ca}(\text{NO}_3)_2$ in soln. The mother liquor is then converted to a NP or NPK fertilizer by the usual methods. M. Hosh

VOL'FKOVICH, S. I.

IA 53T10

USSR/Chemistry - Biography
Chemistry - Bibliography

Sep/Oct 1947

"Nikolay Aleksandrovich Morozov as a Chemist," S. I.
Vol'fkovich, 11 pp

"Izv Akad Nauk SSSR, Otd Khim Nauk" No 5

Describes Morozov's contributions to science during
his lifetime (born 1854, died 30 Jun 1946) and in-
cludes brief reviews of some of his books.

53T10

VOL'FKOVICH, S. I.

PA 34T12

USSR/Chemistry - Fertilizers
Fertilizers - Production

Nov 1947

"Production of Mineral Fertilizers in the USSR for
Thirty Years," Academician S. I. Vol'fkovich, A. M.
Dubovitskiy, Candidate in Technical Sciences, 8 pp

"Khimicheskaya Promyshlennost'" No 11

A brief historical survey of mineral fertilizer pro-
duction in the USSR for the past 30 years. The es-
tablishment of the various raw material bases is dis-
cussed with some treatment of the chemical aspects of
the raw materials. The production of phosphorous
fertilizers is discussed at length. Production of
borates and other fertilizers, and the chemical and
physicochemical analysis of the different types of
fertilizers is treated. COM 34T12

VOL'FKOVICH, S. I.

PA 30T4

USSR/Chemistry - Biographies
Academy of Sciences

May 1947

"Aleksy Nikolayevich Bakh, His Life and Achievements
(1857 - 1946)," S. I. Vol'fkovich, A. I. Oparin, 7 pp

"Zhurnal Obshchey Khimii" Vol XVII, No 5

Summary of the life and work of Academician A. N.
Bakh /Bach/, noted pioneer in the field of Soviet sci-
entific and research work.

-IC

30T4

VOL'ZKOVICH, S. I.

"General Chemical Technology. Vol II" Edited by S. I. Vol'fkovich.
J. A pplied Chem (USSR) XX, pp 574 (1947) review (SEE: Inst.
Insect/Fungi. in Ya. V. Samoylov)

SO: U-237/49, 8 April 1949

18

CA VOL'FROVICH, S. I.

Technology of fertilizers and of sulfuric acid in the U.S.S.R. in the last 30 years. S. I. Vol'froovich and A. M. Dubovitskii. *Zhur. Priklad. Khim.* (J. Applied Chem.) 20, 1053-82 (1947).—Reviewed with 93 references of Russian work.
N. Thon

ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION

VOL'FKOVICH, S. I.

"Historical Notes from the Soviet Potassium Industry," (Sci. Inst. on Fertilizers & Insectofungicides imeni Ya. V. Samoylov.) Paper presented by ~~(extensively) members~~ at ~~the~~ the Commission on the History of Chemistry, Acad. Sci., USSR, first conference on the history of Soviet chemistry, held 12 to 15 May 1948, Moscow.

----- VOL'FKOVICH, S.I.

Vol'fkovich, S.I. "On the sue of sulfur gases for obtaining fertilizer,"
(reference), Soobshch. o nauch. rabotakh chlenov Vsesoyuz. khim. o-va im.
Mendeleyeva, 1948, Issue 2, P. 13-16

SO: U-2888, Letopis Zhurnal'nykh S₄atey, No. 1, 1949

USSR/Chemistry - Synthesis
Chemistry - Chemical Industry

May 1948

"Trends in Modern Chemistry," Academician S.I.
Vol'kovich, 12 pp

67T7
"Nauka i Zhizn'" No 5

PA Apparently one of series of lectures on the trends
in contemporary chemistry. Lecture discusses de-
velopment of raw ore bases for chemical products,
synthesis of new chemical products, development of
new methods and improvements to contemporary produc-
tion methods, development of scientific research
methods, new methods for analysis and control of

67T7

USSR/Chemistry - Synthesis
(Contd)

May 1948

production, studies of mechanisms and kinetics of
chemical reactions, and the introduction of chemis-
try into other fields of science, technology, and
national economy. Pictures of synthetic rubber
plant, method for hydrometallurgical extraction of
nonferrous metals from ore, cracking plant for high
octane gas, and equipment for producing liquid nat-
ural gas.

67T7

VOL'KOVICH, S. I.

VOL'FKOVICH, S. I.

42370 VOL'FKOVICH, S. I. - O. prepodavanii obtsey khimicheskoy tekhnologii uspekhi 1948,
vyd 6, S. 733-43

SO: Letopis' Zhurnal'nykh Statey, Vol. 47, 1948

VOL'FKOVICH, S. I. Acad

PA 42/473

USSR/Academy of Sciences

Dec 48

"Collaboration Between Factory Laboratories and Scientific Research Institute," Acad S. I. Vol'fkovich, 2 $\frac{1}{2}$ pp

"Zavod Lab" Vol XIV, No 12

Stresses importance of subject collaboration, giving concrete examples from work of Sci Res Inst for Fertilizers and Insectofungicides under Ya. V. Samoylov and Sci Res Inst for the Sugar Beet Industry.

49/49T3

VOL'FKOVICH, S. I.

Vol'fkovich, S. I. Correspondance of H. A. Korozov, D. P.
Kononov and V. Kruks on "Periodic systems of the structure of
matter]" Trudy in-ta istorii yestestvoznaniya (Akad. nauk SSSR), Vol. III,
1949, p. 2000-08

SO: U-5241, 17 December 1953, (Letopis 'Zhurnal 'nykh Statey, No. 26, 1949)

VOL'FKOVICH, S. I.

PA 53/49T23

USSR/Chemistry
Fertilizers
Nitric Acid

Jul/Aug 49

"Nitric and Phosphoric Fertilizers Made by Decomposition of Phosphates by Nitric Acid," S. I. Vol'fkovich, A. I. Loginova, Moscow, 10 pp

"Uspekhi Khim" Vol XVIII, No 4

Gives a complete graphical physicochemical analysis of the system $\text{CaO}-\text{P}_2\text{O}_5-\text{N}_2\text{O}_5-\text{H}_2\text{O}$ at 100, 75, 50, 25, and 5° C, and tabulates relation between amount of phosphate decomposed and amount of nitric acid used.

53/49T23

Thermal stability and stabilization of magnesium ammonium phosphate. S. I. Vol'trovich, R. R. Remen, and T. S. Rosenberg. *Zhur. Priklad. Khim.* (J. Applied Chem.) 22, 448-54 (1949).—Vapor pressures of NH_3 + H_2O over crystals of $\text{MgNH}_4\text{PO}_4 \cdot 6\text{H}_2\text{O}$, prepd. by $\text{MgCl}_2 \cdot 12\text{H}_2\text{O}$ + 3NH_3 + $6\text{H}_2\text{O} \rightarrow \text{MgNH}_4\text{PO}_4 \cdot 6\text{H}_2\text{O}$ + $2\text{NH}_4\text{Cl}$ and obtained in fine crystals if the MgCl_2 soln. is poured into H_3PO_4 , or if NH_3 is introduced rapidly, in coarse crystals if H_3PO_4 is poured into MgCl_2 or if NH_3 is introduced slowly, were found to be 3.7, 30.6, 100.9, and 207.1 mm Hg. at 20, 40, 60, and 80°, resp. In an air stream, losses of NH_3 were proportional to the time during the 1st 5 hrs., attaining, at the end of 5 hrs., 0.033, 0.03, 3.18, 8.7, and 29.54%, at 18-20, 30, 60, 70, and 80°; on further passing of air, the losses increased more slowly, attaining, at the end of 12 hrs., 0.42, 4.32, and 49.18%, at 18-20, 60, and 80°, resp. Of the total loss of wt. in 5 hrs. at 80°, 18.57% the part of NH_3 was 1.00, that of H_2O , 16.91%; the amt. of H_2O remaining in the salt, 24.12%, is close to that of an equimol. mixt. of the hexahydrate and the monohydrate, 31.4%. Stirring of the salt increased the loss of NH_3 by 6%, in 5 hrs. at 80°. Moistening of the dry salt with 0.8-2.0 and 4% H_2O increased the loss of NH_3 by 6% and 10%, resp. The rate of absorption of H_2O at 100% humidity at 20° is illustrated by the increase of wt., 3.7, 6.7, 7.5, 9.1, 12.0, and 13.0%, after 15, 30, 60, 90, 150, and 180 days, resp., i.e., the rate of absorption is inversely proportional to the time. Coating of the salt with cereals, applied in a 1:6 soln. in $\text{C}_2\text{H}_5\text{OH}$, evapd. at 45-80°, protects the salt against decomposition; with a coat corresponding to 0.8% of the wt.

VOL'FKOVICH, S. I.

"Materials on the History of Soviet Chemical Science," published by Acad Sci USSR in
Moscow-Leningrad, 1950

VOL'FKOVICH, S. I.

"New Problems of Chemical Technology," speech delivered by Academician S. I. Vol'fkovich of the Chemical Faculty, Tbilisi Polytechnical Institute, Before scientific workers of the Institute and members of Tbilisi Dept. of the All-Union Chemical Society im. D. I. Mendeleyev.

SO: Vestnik Akad. Nauk, March 1950

VOL'FKOVICH, S. I.

"Powerful Chemical Agent for Use Against Agricultural Pests and Diseases,"
Nauka i Zhiza, No. 3, 1950

DIGEST OF TRANSLATION AVAILABLE--W-12836, 16 Aug 50

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CA

VOL'KOVICH, S. I.

Discovery by D. I. Mendeleev of pyrocollodion powder
S. I. Vol'kovich. *Uspekhi Khim.* 10, 383-4 (1931)
N. Tsim.

1934

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CA

VOL'FKOVICH, S.I.

in memory of I. I. Zhukov. S. I. Vol'fkovich, M. M.
Dubinin, and P. A. Reblinder. *Uspkhi Khim.* 10, 647-51
(1950).—Obituary, with list of publications and portrait.

1951

(4) VOL'FROVICH, S. I.

2

Career of Anshel Petrovich Belopolakh. S. I. Vol'frevich.
/J. Applied Chem. U.S.S.R. 23, 829-38(1960)(Engl. trans-
lation).—A eulogy. A. George Stern

CA VOL'F KOVICH, S.I.

Thermographic investigation of the phosphates. 1. The thermal dehydration of the dihydrate of disodium phosphate. S. I. Vol'kovich and V. V. Urusov. *Izv. Akad. Nauk S.S.S.R. Otdel. Khim. Nauk* 1931, 341-9.—The thermal dehydration of $\text{CaHPO}_4 \cdot 2\text{H}_2\text{O}$ was studied by measuring the temp. difference between a sample of the salt and a heating furnace as a function of time as the furnace was heated (cf. *C.A.* 36, 3004¹). The sample was enclosed in a glass tube with pressures of air varying from 25 to 760 mm. Hg. At air pressures from 25 to 100 mm., the temp. differential curves show 3 minima at 100-110°, 127-142°, and 172-175°; this indicates that $\text{CaHPO}_4 \cdot 2\text{H}_2\text{O}$ goes through 2 intermediate compds. before being completely dehydrated to anhyd. CaHPO_4 . At pressures of 100-224 mm., there is one min. at 68-69°; this fact indicates a direct dehydration to the anhyd. form. At higher pressures there is a min. at 68-69°, as above, with another broad min. at 80-100°, accompanied by the formation of a liquid phase. Some commercial applications of this method of dehydration are discussed. Arild J. Miller

VOL'PKOVICH, SEMEN ISAAKO.ICH

VOL'PKOVICH, Semen Isaakovich, 1896- , ed.

[General chemical technology] Obshchaia khimicheskaiia tekhnologia: M, Gos. nauch.tekhn. izd-vo.khim. lit-ry, 1952-
(Chemical engineering) (MIRA 7:5)

VOL'FKOVICH, S. I.; LOGINOVA, A. I.; POLYAK, A. M.

"Solution of Phosphates by Nitric Acid," 1952.

U-1882, 29 April 52

VOLFKOVICH, S.I.

3

3.2-201
 Volkovich, S. I. Obrazovanie i predotvrashchenie tumanov. (Formation and prevention of fog). Sovetskii Zhurnal, Moscow, No. 1:20-21, 1952. 2 illus. DLC--A popular science article describing and illustrating the nature of fogs (natural and artificial), and the usefulness in agriculture and industry as well as aviation, etc., of research into the nature, formation and dissipation of fogs of all types. The work of A. G. ANGLIN (see item 3.10-1, Oct. 1952, AFAB), who received the Stalin Prize, is given great emphasis. Subject Headings:
 1. Fog formation 2. Fog prevention 3. Artificial fog. L. Amelle, A. O. --M.R.

SSI.573.1

Reply

1

44

Translation W-22908. 27 May 52

VOL'FKOVICH, S.I.

Chemistry and the socialist industrialization of the U.S.S.R. Trudy Inst.
ist.est. 4:31-45 '52. (MLRA 6:7)

(Chemistry, Technical)

VOL. FROVICH, S. I., SOBCELEV, F. S.

Agricultural Chemistry

Thoughts and works of D. I. Mendeleev on agriculture and the application of chemistry to it. Vest. Mosk. un. no. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1953, Uncl.
2

1. VOL'FKOVICH, S. I., Acad.
2. USSR (600)
4. Chemical Industries
7. Chemistry of a peaceful life, Znan. sila, No. 10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

VOL'FKOVICH, S. I.

"Developments in Soviet Chemistry," Nauka i Zhizn', Vol. XIX, No. 11, pp. 21-23.

TRANSLATION AVAILABLE--W-27557, 26 Aug 53

VOL'KOVICH, S.I.

ANOSOV, Viktor Yakovlevich, professor, doktor khimicheskikh nauk; POGODIN, Sergey Aleksandrovich, professor, zaslushennyy deyatel' nauki i tekhniki ESFSR, doktor khimicheskikh nauk [authors]; VOL'KOVICH, S.I., akademik; KLOCHKO, M.A., professor, doktor khimicheskikh nauk, laureat Stalinskoy premii [reviewers].

Second awarding of N.S.Kurnakov's prize ("Fundamentals of physicochemical analysis." V.IA.Anosov, S.A.Pogodin. Reviewed by S.I.Vol'fkovich, M.A. Klochko). Izv.Sekt.fiz.-khim.anal. 21:5-9 '52. (MLRA 6:7)

(Chemistry, Analytical) (Pogodin, Sergei Aleksandrovich)

(Anosov, Viktor Yakovlevich, 1891-) (Chemistry, Physical and theoretical)

3-5% CaO, 2-3% SiO₂, and about 1% sesquioxides. Artificially prepd. 64-68% CaF₂ is recommended as a substitute for natural fluorospar in the production of cement and glass. High-grade CaF₂ from the thermal decompn of CaSiF₆ is recommended for the production of HF by reaction with H₂SO₄. CaSiF₆ is recommended as a wood fungicide.

George L. Jones, Jr.

VOL'FKOVICH, S. I.

USSR/Chemistry - Phosphorus Compounds

Jun 52

"Separation of a Mixture of POCl_3 and PCl_3 ," T. I. Sokolova, V. V. Illarionov,
S. I. Vol'fkovich

"Zhur Prik Khim" Vol XXV, No 6, pp 652-657

It is shown that values expressing the dependence of partial pressures on the compn of the PCl_3 - POCl_3 mixt, as derived for the purpose of plotting the isotherm of partial pressures of the system, satisfy the Duheme [?]eq and allow calcn of the Duheme-Margulis const. On the basis of the data obtained, the dependence of the compn of the vapor phase on the compn of the liquid phase can be plotted. It can be considered, with sufficient accuracy, as an isobaric function.

21BT37

(BA-A1 Je '53:510)

1. TUL'CHINSKAYA, V. P., VOL'FKOVICH, S. I.

2. USSR (600)

4. Lopatto, Eduard Ksaver'evich, 1893-1951

7. In memory of Professor Eduard Ksaver'evich Lopatto (1893-1951). Zhur. prikl. khim. 25 no. 10, '52.

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

VOL'FKOVICH, S. I.

U S S R .

✓ The electron-microscopic study of natural phosphates, S. I. Volkovich, L. B. Ginzburg, and A. B. Shcherbakov. ~~Dokl. Akad. Nauk S.S.S.R.~~ ~~137-9~~ (1952). The surface structures of natural apatite and phosphorites were studied. The photomicrographs show the great range of particle sizes, from large particles to particles of several hundred A. in diam. The principal characteristics of the phosphorites are their porosity and fine-crystal structure. These characteristics are used to compare the chem. reactions of phosphorites and apatite, which has a smaller surface. J. Rostar Leach.

VOL'FKOVICH, Semen Isaakovich

VOL'FKOVICH, Semen Isaakovich.

Sovetskaya khimicheskaya nauka (Soviet Chemical Science) Moskva, Izd-
vo Znaniye, 1953.

30 p.

"Literatura": p. (32)

N/5
614
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VOL'KOVICH, S. I.

Scientific research work in chemistry in the U.S.S.R. •
S. I. Vol'kovich. *Sobishcheniya o Nauch. Rabotakh*
Vsesoyuz. Khim. Obshchestva im. Mendeleeva 1953, No. 1,
4-17; *Referat. Zhur., Khim.* 1953, No. 1983. --A review
of trends and development of Soviet chemistry. M. H.

VOL'KOVICH, S. I.

PHASE I

TREASURE ISLAND BIBLIOGRAPHIC REPORT

AID 169 - I

BOOK

Call No.: AF582723

Author: VOL'KOVICH, S. I., YEGOROV, A. P., and EPSHTEYN, D. A.

Full Title: GENERAL CHEMICAL TECHNOLOGY (VOL. I)

Transliterated Title: Obshchaya khimicheskaya tekhnologiya

Publishing Data

Originating Agency: None

Publishing House: State Scientific-Technical Publishing House of Chemical Literature (GOSKHIMIZDAT)

Date: 1953

No. pp.: 632

No. of copies: 25,000

Editorial Staff

Editor: Luchinskiy, G. P.

Tech. Ed.: None

Editor-in-Chief: Vol'fkovich, S. I., Acad.

Appraiser: None

Others: Gratitude is expressed to several Soviet scientists for their valuable comments.

Three additional authors are mentioned: Z. A. Rogovin, Yu. P. Rudenko, I. V. Shmanenkov.

Text Data

Coverage: The book consists of two volumes. Volume I is devoted to general problems of chemical technology (such as raw materials, energetics, technology of water and fuel), to the manufacture of gases, acids, alkalies, salts, fertilizers, and to electrochemical processes, etc. Some illustrations of machinery, tables, and diagrams are included.

AID 169 - I

Obshchaya khimicheskaya tekhnologiya

The book might be of interest because it mentions names of many Soviet scientists and their contributions to the development of various chemical industries. Deposits of some raw materials in the U.S.S.R. and goals set by the Five-Year Plan (1951-1955) for some industries are cited.

Purpose: Approved by the Ministry of Higher Education of the U.S.S.R. as a textbook for departments and colleges of chemical technology.

Facilities: Names of many Soviet chemists are mentioned.

No. of Russian and Slavic References: 145 (1922-1952)

Available: A.I.D., Library of Congress.

2/2

Chemical and technological problems relating to mineral fertilizers in Middle Asia. S. I. Vol'kovich. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1953, 449-58. — A detailed report relating to the needs of Middle Asia and the methods of production with reference to the phosphate deposits in Karz-tai (cf. Belopol'skii, et al., C.A. 48, 10290d). The advantages of HNO_3 treatment and a concd. fertilizer are emphasized. I. Benicovitz

VOL'KOVICH, S. I.

Physicochemical analysis of salts and fertilizers in the
works of Prof. A. P. Belonogovskii

USSR/Chemistry - Chemical Technology

Sep 53

Review of S.I. Vol'fkovich, A.P. Yegorov and D.A. Epshteyn's book 'General Chemical Technology (Obshchaya Khimicheskaya Tekhnologiya)' Vol I, 632 pp, Goskhimizdat, Moscow, 1953, (P.F. Budnikov, reviewer)

Usp Khim, Vol 22, No 9, pp 1165-1168

In this book material is organized on the basis of similarity of technol processes and partly on the basis of common raw material source. The section on thermal treatment of fuels discusses pyrolysis of solid fuel, conversion of petroleum and natural

268T17

gas, and gasification of solid fuel, including subterranean gasification. Development of the chem ind during prewar 5-yr plans and the leading USSR chem schools are discussed. The section on basic inorganic synthesis describes new processes for production of conc HNO_3 by direct synthesis and combined production of HNO_3 and H_2SO_4 . While the book has some shortcomings, it is a valuable textbook for higher educational institutions.

268T17

VOL'FKOVICH, S.I.; YEGOROV, A.N.; EPSHTEYN, D.A. [authors]; YAKOVKIN, G.A. [reviewer].

"General chemical technology." S.I.Vol'fkovich, A.N.Egorov, D.A.Epshtein.
Reviewed by G.A.Iakovkin. Zhur.prikl.khim. 26 no.10:1103-1104 0 '53.

(Chemistry, Technical) (Vol'fkovich, Semen Isaakovich) (MLRA 6:10)
(Egorov, A.N.) (Epstein, D.A.)

ZVYAGINTSEV, O.Ye. [reviewer]; VOL'FKOVICH, S.I.; YEGOROV, A.P.; EPSHTEYN, D.A.
[authors].

"General chemical technology." S.I.Vol'fkovich, A.P.Egorov, D.A.Epshtein.
Reviewed by O.E.Zviagintsev. Zhur.prikl.khim. 26 no.12:1323-1324 D '53.

(MLRA 6:11)

(Chemistry, Technical) (Vol'fkovich, Semen Isaakovich) (Egorov, A.P.)
(Epshtein, D.A.)

RAZUVAYEV, G.A.; PETUKHOV, G.P.; REKASHEVA, A.F.; MIKLUKHIN, G.P.; VOL'FKOVICH, S.I., akademik.

Use of deuterium in the study of photochemical reactions in the liquid phase of metalorganic compounds. Dokl. AN SSSR 90 no.4:569-572 Ja '53.
(MLRA 6:5)

1. Akademiya Nauk SSSR (for Vol'fkovich). 2. Institut fizicheskoy khimii im. I.V. Pisarshevskogo Akademii nauk Ukrainской SSR (exc. Vol'fkovich).
3. Gor'kovskiy gosudarstvennyy universitet (for all exc. Vol'fkovich).
(Organometallic compounds) (Deuterium)

RODE, T.V.; VOL'FKOVICH, S.I., akademik.

Polymorphous conversions of potassium and sodium peroxides, at low temperatures. Dokl. AN SSSR 90 no.6:1075-1078 Je '53. (MLBA 6:6)

1. Akademiya nauk SSSR (for Vol'fkovich).

(Peroxides)

RODE, T.V.; DOBRYNINA, T.A.; VOL'FKOVICH, S.I., akademik.

Thermal analysis of lithium peroxide. Dokl. AN SSSR 91 no.1:125-127
Jl '53. (MLRA 6:6)

1. Akademiya nauk SSSR (for Vol'fkovich).
(Lithium peroxide) (Thermal analysis)

LESKOVICH, I.A.; VOL'FKOVICH, S.I., akademik.

Relaxation of strains in phase transformations of ammonium nitrate and p-dichlorobenzene. Dokl. AN SSSR 91 no.2:295-298 J1 '53. (MLEA 6:6)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova Akademii nauk SSSR. 2. Akademiya nauk SSSR (for Vol'fkovich).
(Phase rule and equilibrium) (Ammonium nitrate) (Benzene derivatives)

RODE, T.V.; VOL'FKOVICH, S.I., akademik.

Thermographic study of lithium carbonate. Dokl. AN SSSR 91 no.2:313-314 J1
'53. (MLBA 6;6)

1. Akademiya nauk SSSR (for Vol'fkovich). (Lithium carbonate) (Thermo-
chemistry)

BOKIY, G.B.; SMIRNOVA, N.N.; VOL'FKOVICH, S.I., akademik.

Crystallochemical investigation of the compound $\text{Ag}_7\text{NO}_{11}$. Dokl. AN SSSR
91 no.4:821-823 Ag '53. (MLRA 6:8)

1. Akademiya nauk SSSR (for Vol'fkovich).
2. Institut obshchey i neorganicheskoy khimii im. N.S.Kuranakova Akademii nauk SSSR.
(Silver compounds)

TSIKLIS, L.S.; VOL'FKOVICH, S.I., akademik.

Compressibility of ammonia at pressure up to 10 000 atm. Dokl. AN
SSSR 91 no. 4:889-890 Ag '53. (MLRA 6:8)

1. Akademiya nauk SSSR (for Vol'fkovich).
(Ammonia)

GEL'D, P.V.; PASHILOV, A.I.; CHUCHMAREV, S.K.; VOL'FKOVICH, S.I., akademik.

Reciprocal solubility of calcium oxide and calcium carbonate. Dokl. AN SSSR
91 no.5:1115-1117 Ag '53. (MLBA 6:8)

1. Akademiya nauk SSSR (for Vol'fkovich). 2. Ural'skiy politekhnicheskii
institut im. S.M.Kirova. (Calcium compounds) (Solubility)

TSIKLIS, D.S.; VOL'FKOVICH, S.I., akademik.

Limited reciprocal solubility of gases in the system: helium - ethylene,
under high pressures. Dokl.AN SSSR 91 no.6:1361-1363 Ag '53. (MLRA 6:8)

1. Akademiya nauk SSSR (for Vol'fkovich). 2. Nauchno-issledovatel'skiy i
proyektnyy institut azotnoy promyshlennosti (for TSIklis).
(Solubility) (Helium) (Ethylene)

KUSKOV, V.K.; GRADIS, T.Kh.; VOL'FKOVICH, S.I., akademik.

Reaction of diethyl phosphite with sodium alcoholates. Dokl.AN SSSR 92 no.2:
323-324 S '53. (MLRA 6:9)

1. Akademiya nauk SSSR (for Vol'fkovich). 2. Moskovskiy gosudarstvennyy uni-
versitet im. M.V.Lomonosova (for Kuskov and gradis).
(Diethyl phosphite) (Alcoholates)

PORAY-KOSHITS, M.A.; ANTSISHKINA, A.S.; VOL'FKOVICH, S.I., akademik.

Structure of the crystals of dichlorotetrapyridine of nickel, and dichlorotetrapyridine of cobalt. Dokl.AN SSSR 92 no.2:333-335 S '53. (MIRA 6:9)

1. Akademiya nauk SSSR (for Vol'fkovich).
(Nickel organic compounds) (Cobalt organic compounds)

POZIN, M.Ye.; MUKHLENOV, I.P.; VOZ'FKOVICH, S.I., akademik.

Foam conditions for the processing of gas-fluid systems. Dokl. AN SSSR 92 no.2:
393-396 S '53. (MLRA 6:9)

1. Akademiya nauk SSSR (for Vol'fkovich). 2. Leningradskiy tekhnologicheskii
institut im. Lensoveta (for Pozin and Mukhlenov).
(Foam) (Fluid dynamics)

VAYNSHTEYN, N.Ye.; VOL'FKOVICH, S.I., akademik.

Generalization of the equation for the converted function of blackening.
Dokl.AN SSSR 92 no.4:723-725 0 '53. (MLRA 6:9)

1. Akademiya nauk SSSR (for Vol'fkovich). 2. Institut geokhimii o analiti-
cheskoy khimii im. V.I.Vernadskogo Akademii nauk SSSR (for Vaynshteyn).
(Microspectrophotometry)

BOKIY, G.B.; BATSANOV, S.S.; VOL'FKOVICH, S.I., akademik.

Refraction of the hydrogen bond. Dokl. AN SSSR 92 no.6:1179-1180 0 '53.
(MLBA 6:10)

1. Akademiya nauk SSSR (for Vol'fkovich). (Refraction) (Hydrogen)

VOL'FKOVICH, S. I.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

<u>Name</u>	<u>Title of Work</u>	<u>Nominated by</u>
Vol'fkovich, S. I.	"General Chemical Technology" (Textbook, Vol I)	Scientific Research Institute of Teaching, Academy of Pedagogical Sciences RSFSR
Yegorov, A. P.		
Epshteyn, D. A.		

SO: W-30604, 7 July 1954

VOL'FKOVICH, S.I.

VOL'FKOVICH, S.I., akademik; SERGIYENKO, S.R., doktor khimicheskikh nauk
professor; KAUFMAN, I.M., redaktor; KHOVANSKIY, I.P., tekhnicheskii
redaktor

[Russian chemists; annotated reading list] Russkie khimiki; anno-
tirovannyi ukazatel' literatury. Vvodnaia stat'ia i biograficheskie
ocherki S.R.Sergienko. Pod red. S.I.Vol'fkovicha. Moskva, 1954. 145 p.
(Chto chitat' o vydaiushchikhsia deiateliakh otechestvennoi nauki i
tekhniki. no.5)
(Chemists)

VOL'FKOVICH, S. I.

U.S.S.R.

Reaction of phenol with phosphorus. S. I. Vol'fkovich, V. K. Kuckov, and K. P. Koroteeva. *Izv. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1954, 5-8. Heating P with EtOH in an autoclave at 240-50° and 100 atm. gave a low yield of organo-P deriva., including those, b. 110-220°, whose structure was not detd. The gaseous products contained C₂H₄. At higher temp. noticeable amts. of decomposition products were observed. It is believed that the 1st reaction is dehydration of EtOH and the reaction of the resulting H₂O with P; the resulting products then react with EtOH yielding the various products. PhOH does not react with red P in an autoclave, even at 300°, but in the presence of a little H₂O reaction starts even at 200° with a rise in pressure to 40-150 atm. Thus, a well mixed mixt. of 23.5 g. PhOH, 6.8 g. red P, and 4.5 ml. H₂O heated in an autoclave 4.5 hrs. at 250-65° and 110 atm., then allowed to cool over 12 hrs., gave a residual pressure of 20 atm. the gases being composed principally of H₂ (99.5%). After diln. with H₂O, the residual red P was filt.-red off (5 g.), washed with Et₂O, the filtrates were warmed to expel Et₂O and extd. with C₆H₆; evapn. of the C₆H₆ gave 2 fractions: 2.8 g. PhPH₂, b. 87-96°, b. 160°, and 1 g. Ph₂PH, b. 170°, b. 272°. Steam distn. of the PhOH from the unq. portion and evapn. of the residual soln. yielded 4 g. yellowish cryst. product, apparently crude PhPO₂H₂. In a similar expt. but with only 2.25 ml. H₂O, heating 16 hrs. to 200° at 50 atm. again yielded PhPH₂ and a mixt. of acids of P. A mixt. of 3.2 g. red P with 23.2 g. dry NaOPh and 3.6 g. H₂O heated in an autoclave over 4 hrs. to 250° (17 atm. pressure developed), kept there 3 hrs., allowed to cool 12 hrs. (residual pressure of 30

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atm., with gas composed of H_2 and PH_3 was found), extd. with 200 ml. hot H_2O , the ext. neutralized with HCl , the unreacted P filtered off, washed with Et_2O (4 g. P claimed), the combined filtrate heated to expel the Et_2O , extd. with CCl_4 , and the CCl_4 distd. gave 0.7 g. PH_3 , while the aq. layer, freed of PH_3 by steam distn., evapd., the $NaCl$ removed, and the filtrate evapd. further and chilled gave 1 g. crude $PhPO_2Na$, contaminated with Na_3PO_4 (contained 17% P); evapn. of the filtrate gave 1.4 g. NaH_2PO_4 . By increasing the amt. of H_2O in the reaction to 7.2 ml., the above mixt. gave, after 8 hrs. at 150° and 4 hrs. at 225° and 260° , only traces of phosphines, while the org. ext. gave 1-2 g. $(PhO)_2PO$, along with crude $PhPO_2H$, and about 5 g. mixed Na phosphates and phosphites. Heating 13.5 g. $NaOPh$ and 17 g. $PhOH$ with 3.99 g. red P 2 hrs. at 260° (52 atm. pressure developed), then 1 hr. at 270° (56 atm.), gave after cooling a gas mixt. contg. PH_3 , while treatment of the products as described above gave 3 g. Ph_2O , along with traces of unident. organo- P compds. Apparently the reaction of P with $PhOH$ and $PhONa$ in the presence of H_2O proceeds through dismutation analogous to that of P with H_2O alone, so that, instead of PH_3 and inorg. P acids, their phenylated analogs are formed. The following reactions are usable for identification of the products: with $PhOH$ are formed $(PhO)_2PO$ and H_2 ; with $PhONa$, $PhPH_2$, and NaH_2PO_4 , along with PH_3 , $PhPO(OH)ONa$ and $PhPO(ONa)_2$. Cf. Ipatiev, et al., *Zhur. Obshchei Khim.* 1, 632 (1931); C.A. 22, 2300; Berthaud, C.A. 1, 720; Sanderens, C.A. 1, 3090; Britskii and Petrov, C.A. 24, 293. G. M. Kosolapoff

VOL'KOVICH, S.I.

Triumph of Mendeleev's genius; on the occasion of the 120th anniversary of his birth. February 8, 1834--February 8, 1954. Soob.o
nauch.rab.chl.VKHO no.2:1-17 '54. (MIRA 10:10)
(Mendeleev, Dmitrii Ivanovich, 1834-1907)

VOL'FKOVICH, S. I.

FD 191

USSR/Chemistry - Phosphate Fertilizers Production

Card 1/1

Authors : Vol'fkovich, S. I., Illarionov, V. V., and Remen, R. Ye.

Title : Investigation of the process of hydrothermal conversion of apatite

Periodical : Khim. prom. 4, 11-17 (203-209), June 1954

Abstract : Investigated the defluorination of fluoroapatite with steam. Found that by treating an apatite concentrate with steam at 1400°C in the presence of 2% of silicon dioxide, a fertilizer which contains up to 34-38% of phosphorus pentoxide and less than 0.1% of fluorine is obtained. This fertilizer is approximately twice as concentrated as Thomas slag. Ten USSR references, three since 1940; twenty-five foreign references. Three graphs and seven tables.

Institution : Scientific Research Institute of Fertilizers and Insectofungicides

Vol'fkovich, S. I.
USSR/Chemistry - Agricultural

FD-868

Card 1/1 Pub.50 - 1/24

Author : Vol'fkovich, S. I., Mel'nikov, N. N., Orlov, V. I.

Title : The chemical industry in the fight to increase yields and preserve crops (Concerning the opening of the All-Union Agricultural Exposition).

Periodical : Khim. prom., No. 6, 321-331 (1-11), Sep 1954

Abstract : Review general trends in USSR agricultural chemistry and current production plans and other developments in fertilizers, insecticides, fungicides, herbicides, and plant growth stimulants. Six references, all USSR, all since 1940. Three figures.

Institution :

Submitted :

Vol'fkovich, S.

USSR/Chemistry - Technology, Electrothermic processes

FD-889

Card 1/1 Pub.50 - 22/24

Author : Vol'fkovich, S.

Title : Obituary of L. A. Kuznetsov

Periodical : Khim. prom., No 6, 379 (59), Sep 1954

Abstract : Reviews the life and activity of L. A. Kuznetsov (1894-1954), a chemical engineer, research worker, and technologist who was active in the calcium carbide and calcium cyanamide industries, worked on the production of cyanides, thiourea, melamine, insecticides, various synthetic organic chemicals, etc., and was in charge of the installation and operation of plants manufacturing these products. According to Vol'fkovich, Kuznetsov was one of the foremost USSR authorities on electrothermic processes. One figure (portrait of Kuznetsov).

Institution :

Submitted :

VOL'PKOVICH, S.I., akademik.

Chemistry in agriculture. Tekh.mol. 22 no.4:7-10 Ap '54.
(MLRA 7:4)
(Agricultural chemistry)

VOLODKOVICH, S. I.

Subject : USSR/Chemistry AID P - 263
Card : 1/1
Authors : Vol'fkovich, S. I. and Kapustinskiy, A. F. (Moscow)
Title : Ergard Viktorovich Britske (1877-1953)
Periodical : Usp. khim. 23, No. 2, 129-141, 1954
Abstract : Biography and outline of E. V. Britske's scientific and industrial activities (fertilizers, metallurgy). A list of his publications is given. Four references (Russian): 1931-1947.
Institution : None
Submitted : No date

VOL'PKOVICH, S.I.

Famous Russian scientist and revolutionary (100th anniversary of the birth of N.A.Morozov). Vest. AN SSSR 24 no.8:56-63 Ag '54.
(Morozov, Nikolai Aleksandrovich, 1854-1946) (MIRA 7:9)

VOL'FKOVICH, S. I.

"Soviet Work on Hydrothermic Method for Conversion of Natural Phosphates
into Fertilizers, Vest Ak Nauk SSSR, Vol 24, No 12, p 72, 1954

Summary W-31263, 10 May 55